

REMARKS/ARGUMENTS

The Applicant originally submitted Claims 1-42 in the application. In the previous response, the Applicant elected Claims 1-32 and canceled Claims 33-42. In the present response, the Applicant has amended Claim 1 and has not added or canceled any claims. Accordingly, Claims 1-32 are currently pending in the application.

I. Rejection of Claims 1-32 under 35 U.S.C. §102

The Examiner has rejected Claims 1-32 under 35 U.S.C. §102(b) as being anticipated by an article entitled "Diagnosis Method Based on Delta-IDDQ Probabilistic signatures: Experimental Results," IEEE International Test Conference, 1998, pp. 1019-1026, by Thibeault, *et al.* (Thibeault). The Applicant respectfully disagrees since Thibeault does not teach identifying defects in an integrated circuit including measuring a current signature delta value of a device under test based on transient currents and comparing the current signature delta value to a threshold current signature delta value to determine whether the current signature delta value is greater than the threshold current signature delta value as recited in Claim 1.

Instead, Thibeault teaches a diagnosis method based on the concept of differential current probabilistic signatures and on maximum likelihood estimation that employs a differential current measurement. (Page 1019, section 2.1). The differential current measurement, however, differs from the current signature delta value of Claim 1. The differential current measurement taken at a given vector is defined as the I_{DDQ} measurement taken at this vector minus the I_{DDQ} measurement taken at the previous vector. (Page 1019, section 2.1). The current signature delta value, on the other hand, is derived from the difference of pre- and post-voltage stress current signature values.

(Page 9 of specification, lines 8-11). Thus, Thibeault uses an I_{DDQ} current difference between vectors to diagnose while the present invention uses a current difference between pre- and post-voltage stress.

Additionally, Thibeault is strictly based on I_{DDQ} currents (static currents) whereas the present invention uses a current signature delta value based on transient currents. (Claim 1). Thibeault does not address employing transient currents for diagnosing. Thus, Thibeault does not teach each and every element of Claim 1.

Since Thibeault does not teach each and every element of independent Claim 1, Thibeault does not anticipate Claim 1 and Claims dependent thereon. Accordingly, the Applicant respectfully requests the Examiner to withdraw this §102(b) rejection of Claims 1-32.

II. Rejection of Claims 1-32 under 35 U.S.C. §102

The Examiner has rejected Claims 1-32 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,140,832 to Vu, *et al.* (Vu). The Applicant respectfully disagrees since Vu does not teach identifying defects in an integrated circuit including measuring a current signature delta value of a device under test based on transient currents and comparing the current signature delta value to a threshold current signature delta value to determine whether the current signature delta value is greater than the threshold current signature delta value as recited in Claim 1.

Vu is directed to a method to utilize I_{DDQ} tests to screen out defective parts. The method uses effective widths of NMOS and PMOS devices in a digital circuit and their intrinsic junction and subthreshold leakage currents to produce a delta of I_{DDQ} between pre- and post-overvoltage stress tests to screen out defective ICs having excessive extrinsic current leakage. (Abstract). Vu,

however, does not teach a current signature delta value based on transient currents. On the contrary, Vu solely uses I_{DDQ} tests that measure a static current of a digital IC when all of the logic gates are in a known state. (Column 3, lines 44-45). Thus, Vu does not teach each and every element of independent Claim 1.

Since Vu does not teach each and every element of independent Claim 1, Vu does not anticipate Claim 1 and Claims dependent thereon. Accordingly, the Applicant respectfully requests the Examiner to withdraw this §102(e) rejection of Claims 1-32.

III. Rejection of Claim 1 under 35 U.S.C. §102

The Examiner has rejected Claim 1 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,889,408 to Miller. The Applicant respectfully disagrees since Miller does not teach identifying defects in an integrated circuit including measuring a current signature delta value of a device under test based on transient currents and comparing the current signature delta value to a threshold current signature delta value to determine whether the current signature delta value is greater than the threshold current signature delta value as recited in Claim 1.

Miller is directed to a method for I_{DDQ} testing to detect defects in a semiconductor device in the presence of a high background leakage current. In one embodiment, at least a portion of a semiconductor device is biased and a first quiescent current (I_{DDQ}) measurement is taken. The portion of the semiconductor device that was biased is then unbiased and a second quiescent current measurement is taken. The first and second quiescent currents are then compared to determine if a defect exists in that portion of the semiconductor device. (Column 2, lines 26-36).

A delta of the first and second quiescent current measurement is not, however, compared to a threshold current signature delta value as recited in Claim 1. Instead, the first and second quiescent current measurements are compared to each other to determine defects. (Abstract and Figure 3). Additionally, Miller does not teach a current signature delta value based on transient currents as recited in Claim 1. On the contrary, Miller is solely directed to using I_{DDQ} current measurements for detecting defects. Thus, Miller does not teach each and every element of independent Claim 1.

Since Miller does not teach each and every element of independent Claim 1, Miller does not anticipate Claim 1. Accordingly, the Applicant respectfully requests the Examiner to withdraw this §102(e) rejection of Claim 1.

IV. Comment on Cited Art

The Applicant reserves further review of the references cited but not relied upon if relied upon in the future.

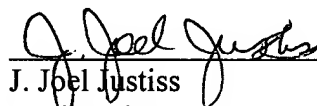
V. Conclusion

In view of the foregoing amendments and remarks, the Applicant now sees all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicits a timely Notice of Allowance for Claims 1-32.

The Applicant requests the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application.

Respectfully submitted,

HITT GAINES, P.C.



J. Joel Justiss
Registration No.48,981

Dated: 10/8/03

HITT GAINES, P.C.
P.O. Box 832570
Richardson, Texas 75083
(972) 480-8800